

Atherosclerosis and Inflammation

1.3 Renal Angioplasty Reduces Leukocytes Count in Hypertensive Patients with Atherosclerotic Renal Artery Stenosis

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Introduction. The association of hypertension and renal artery stenosis may accelerate atherosclerosis through the activation of pro-inflammatory factors whose effects could be mirrored by an increase in circulating leukocytes (L, 103/ml).

Methods. In 394 hypertensive patients who underwent renal angiography for the clinical suspicion of renal artery stenosis, we measured L, systolic and diastolic blood pressure (SBP, DBP mmHg) and calculated glomerular filtration rate (GFR, ml/min) from serum creatinine values with MDRD formula.

Results. In 178 patients with unilateral (U = 109) or bilateral (B = 69) renal artery stenosis, L were higher than in 216 patients without RAS (7.4 ± 0.2 vs 7.1 ± 0.1 , $p < 0.05$). Patients with renal artery stenosis were older (61 ± 1 vs 42 ± 1 years), had higher SBP (171 ± 2 vs 165 ± 2) and lower DBP (97 ± 1 vs 101 ± 1) and GFR (54 ± 2 vs 79 ± 2) ($p < 0.01$ or more for all differences). Fifty-six patients with renal artery stenosis (38U/18B) were reinvestigated after a follow up of 12-18 months. Among these, 35 patients with renal artery stenosis (25U/10B) were treated with successful renal angioplasty (RA) whereas the remaining 21 patients (13 U, 8 B) were treated only medically. In dilated patients, L decreased from 7.5 ± 0.4 to 6.6 ± 0.3 ($p < 0.001$); also SBP and DBP decreased respectively from 178 ± 4 to 150 ± 5 and from 100 ± 2 to 87 ± 2 ($p < 0.01$ per both) whereas GFR was unchanged (58 ± 3 vs 59 ± 4). In contrast, in not dilated patients L were unchanged with respect to baseline (7.6 ± 0.3 vs 7.4 ± 0.4), SBP and DBP were decreased as in dilated patients (respectively from 173 ± 4 to 152 ± 3 and from 98 ± 2 to 91 ± 2 , $p < 0.01$) and GFR was unchanged (58 ± 4 vs 60 ± 4).

Conclusions. In hypertensive patients with renal artery stenosis L are higher than in those without renal artery stenosis; moreover RA of one or both renal artery stenosis lowers L. This potential anti-inflammatory effect of renal artery dilatation cannot be attributed to decrease in BP levels, nor to changes in GFR.